

A new subgenus of *Xenosiphon* (Sipunculidae) and description of a new Species from Indian waters

BY

PEACE JOHNSON

Department of Zoology, Christ College, Irinjalakuda

(With a plate)

INTRODUCTION

The genus *Xenosiphon* was created by Fisher in 1947 to include the peculiar sipunculid *Sipunculus mundanus* var. *branchiatus* Fischer, 1895, having a pair of protractor muscles in addition to the four retractor muscles. Later two more species, *X. mundanus* (Selenka, deMan & Bulow) and *X. caribaeum* Fisher were reported. Considering the nature of the coelomic canals in the trunk wall, Fisher (1954) created two subgenera namely *Xenosiphon* to include *X. branchiatus* and *X. caribaeum* and *Austrosiphon* to include *X. mundanus*. The specimens collected from Minicoy, Laccadives have been examined by me and they differ from these three species so greatly that it justifies separation as a new species of a distinct subgenus. In this paper I have redescribed the generic characters of *Xenosiphon* including the subgenera and the species *X. indicus* sp. nov. has been fully described. This is the first report on species of the genus *Xenosiphon* from Indian seas.

Genus *XENOSIPHON* Fisher

Xenosiphon Fisher, 1947, p. 360 ; 1952, p. 377.

Diagnosis :

Very large forms with thick body wall. Trunk surface smooth, produced into rectangular areas. Introvert provided with scaly or triangular-shaped, backwardly directed papillae. Hooks and spines absent on the introvert. Tentacles foliaceous. A pair of muscles functioning as protractors. Retractors four or two. Rectum usually long and anus anterior to nephridiopores. Spindle muscle arises from rectal wall. Accessary intestinal loop sometimes present. Cephalic

tube may be wanting. Subcutaneous coelomic system either as independent irregular sacs or as longitudinal canals.

Subgenus *Xenosiphon* Fisher

Diagnosis :

Retractors four. Protractors two. Subcutaneous coelomic system as independent irregular sacs. No accessory intestinal loop.

Type species : *X. branchiatus* (Fischer)

Subgenus *Austrosiphon* Fisher

Diagnosis :

Retractors four. Protractors two. Subcutaneous coelomic system as longitudinal canals. Simplified intestinal loop.

Type species : *X. mundanus* (Selenka, deMan & Bulow).

Subgenus **Xenopsis** subgen. nov.

Diagnosis :

Retractors two. Protractors two. Subcutaneous coelomic system as longitudinal canals. Accessory intestinal loop present. No cephalic tube.

Type species : *X. indicus* sp. nov.

Xenosiphon indicus sp. nov.

Material : Two specimens collected by Sri V. M. N. Namboodiripad of Malabar Christian College, Kerala, from Minicoy Island, Laccadives, in December 1962.

The specimens are large. The larger of them measures 460 mm. in length and 10 mm. across the broadest part of the body. The introvert is short being 25 mm. long. The smaller specimen is 380 mm. long and 9 mm. broad with an introvert measuring 20 mm. in length. They are pinkish in colour. In one the introvert is well extended out while in the other it is fully withdrawn.

The skin is thick, smooth and devoid of papillae. The surface of the skin is produced into rectangular areas by circular and longitudinal grooves. The circular grooves are deeper than the longitudinal ones ; so that the smaller sides of the rectangles lie in the antero-posterior axis. The posterior end of the trunk is produced into a bulbular swelling. The introvert is short when compared to the trunk (Fig. 1). It carries numerous scale-like papillae which are directed posteriorly. These are

more like tubercles than triangular. At the tip of the introvert there is the tentacular crown which surrounds the mouth. It consists of 6 sets of tentacular lappets of a thin membraneous nature. They are arranged in double rows and they are not continuous with one another (Fig. 7). The free margin of these lappets are cut into minute and coarse tentacles. Between the two rows of tentacular lappets there is a groove and all such grooves are directed towards the mouth opening. The crown gives a bushy appearance to the tip of the introvert (Fig. 1). Behind these tentacular processes a small area of the introvert is smooth without papillae. Hooks and spines are absent on the introvert. A small opening which leads to the brain, a characteristic feature of the genus *Sipunculus*, is wanting in these specimens.

Internally there are two retractor muscles which are dorsal in their attachment around the oesophagus. This pair extend downwards about one-sixth of the body length and each spans the 16th longitudinal muscle band of the body wall. These obviously function as retractors (Fig. 3). Each one is very thick anteriorly and thins out posteriorly to merge with the single 16th longitudinal muscle band of the body wall. There is a ventral pair which is attached exactly at the base of the introvert, very close and on either side of the nerve cord (Fig. 2). In the specimen where the introvert is withdrawn, these two ventral muscles are directed anteriorly while the other pair (retractors) lie directed posteriorly (Fig. 5). Obviously the ventral pair functions as protractor muscles because of their position of attachment to the body wall as well as their disposition in the withdrawn condition of the introvert. Thus there are two retractors which are dorsal and two protractors which are ventral in position. There are two long nephridia. A major part of each nephridium is attached to the body wall by mesenteries, a small part posteriorly being free. The longitudinal muscle layer is separated into 45 bands anteriorly and 40 posteriorly indicating the union of bands in the middle region. The oesophagus is very long and before entering into the main intestinal coils, makes a separate loop of itself (Fig. 4). The rectum is long and possesses a coecum. Spindle muscle arises near the anus and runs down through the centre of the intestinal coils and is not attached posteriorly. Two pollian sacs (dorsal and ventral) are present which are simple, without villi. Brain is dorsal and is placed far below the tentacular crown. It carries a frilled 'frons' at its anterior part (Fig. 6). The circumenteric connectives join ventrally to form the nerve cord. The cord is free in the introvert coelom. In the trunk it is closely apposed to the body wall being interposed by longitudinal muscle bands. In the introvert free muscle strands originate from the body wall, from either side of the nerve cord as well as from the anterior margin of the trunk wall, which fuse together to form stout muscle bands. These

bands lie one on either side of the nerve cord. These are known as the paraneural muscles (Fig. 3).

Holotype and paratype: Deposited in the Zoological Museum, B. I. T. S., Pilani, Rajasthan.

Type locality: Minicoy Island, Laccadives.

Systematic position :

Xenosiphon indicus sp. nov. closely resembles the species of the genus *Sipunculus* in the following characters :

1. The skin surface is produced into rectangular areas.
2. The introvert is provided with scale-like papillæ.
3. The œsophagus makes a characteristic loop before entering into the main intestinal coils.

It differs from *Sipunculus* species in having two protractor muscles and in the absence of a cephalic tube.

The presence of protractor muscles is reported only in the genus *Xenosiphon* Fisher, 1947. Only three species, *X. mundanus* (Selenka, deMan & Bulow), *X. branchiatus* (Fischer) and *X. caribaeum* Fisher are reported so far. *X. indicus* sp. nov. differs from these three species in the following characters:

1. Only two retractor muscles.
2. Longitudinal muscle bands vary from 40-45.
3. Absence of a cephalic tube.
4. Arrangement of the tentacular crown.

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